UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,894	08/21/2003	Andrew A. Goldenberg	14422	6404

293 7590 05/10/2005

Ralph A. Dowell of DOWELL & DOWELL P.C.
2111 Eisenhower Ave.
Suite 406
Alexandria, VA 22314

EXAMINER	
BUDD, MARK OSBORNE	
ART UNIT	**PAPER NUMBER**
2834	

DATE MAILED: 05/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

SM

Office Action Summary	Application No.	Applicant(s)	
	10/644,894	GOLDENBERG ET AL.	
	Examiner	Art Unit	
	Mark Budd	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 March 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-52* is/are pending in the application.

4a) Of the above claim(s) *37-52* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23,25-27 and 29-36* is/are rejected.

7)☒ Claim(s) *24 and 28* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6, 26 and 31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

These claims are vague and indefinite. In claim 6, last two lines, how can the stretched axial dimension be a percentage of the original circumferential direction? The stretch is in relation to its own original dimension. Claim 26 calls for a ceramic to be comprised of one of a mica and polypropylene. Neither of these materials are ceramic. Claim 31 contrictidicts itself in stating "---insulating material is a conductive material".

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-11, 13-16, 18, 19, 21-23, 25-27, 29-33, 35 and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Pelrine (184).

Pelrine teaches using an electro active polymer as a generator (col. 7, line 51-col. 8 line 23). The polymer is prestretched anisotropically from 100 to b 600 percent (col. 11, line 9 – col.12 line 22). Elastic, textured materials and/or conductive grease are used electrode materials (col. 27 line 55' col. 30 line 67). The device can have both an electrical and mechanical bias (col. 10 lines 50-54). A low stiffness (elastic)

shielding layer can be provided (col. 17 lines 50-58). The single electroded layer may be replaced by a multi layered laminated device using e.g. a stiff Mylar layer as a general purpose layer located between various electroactive layers (col. 16 line 40 col. 18 line 8). The ends of the electroactive device are coupled mechanically to other structures that impart strain to the polymer.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 12, 17, 20, 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pelrine (184).

Pelrine discloses the basic actuator as described above. Pelrine does not explicitly teach a multi-layer electrode structure, the particular shielding material, a check valve or each mechanical end acting as only a single signal input to the device. It has long been held that selection from among known suitable materials is within the skill expected of the routineer. Thus selection of any specific low stiffness, conductive material for the electrical shield would have been obvious to one of ordinary skill in the art. Pelrine specifically indicates the polymer can be the active member in a pump structure (col. 17, line 45). Since piezoelectric pumps routinely contain check valves (official notice taken), the provision of a valve would have been obvious to one of ordinary skill in the art. Using either one or both ends of a piezoelectric element as the electrical input/output would be a matter of convenience based upon the structure the

device incorporated into. Both types of connections are routinely used in the prior art (official notice taken) and the use of one over the other would have been obvious to one of ordinary skill in the art.

Claims 24 and 28 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Further cited of interest are Schwartz, Taylor, Su Heim and Pelrine (110).

Budd/ds

04/28/05

MARK O. BUDD
PRIMARY EXAMINER
ART UNIT 2834